

MIND AT LARGE. Institute of Electrical and Electronic Engineers Symposia on the Nature of Extrasensory Perception. Edited by Charles T. Tart, Harold E. Puthoff, and Russell Targ. New York: Praeger Publishers, Praeger Special Studies, 1979. Pp. xix + 267. \$21.95, cloth.

Mind at Large is a collection of papers presented at symposia held under the sponsorship of the Institute of Electrical and Electronic Engineers (IEEE). It includes a revision of Puthoff and Targ's paper that appeared in the March 1976 *Proceedings of the IEEE*, material from their keynote address to the 1976 IEEE International Conference on Cybernetics and Society in Washington, D.C., material from the symposium on the "State of the Art in Psychic Research" at the Electro 1977 National Convention of the IEEE, and from a technical session at the 1977 IEEE International Conference on Cybernetics and Society in Washington, D.C.

As a book which the editors say is intended to provide more information about psi research for the general scientific community, it must be considered a readable, thought-provoking presentation of a variety of material on recent progress in the field of parapsychology. The parapsychologist will find that it contains material already available. Aside from Puthoff and Targ's IEEE paper mentioned above, Bisaha and Dunne's chapter was presented at the twenty-first annual convention of the P.A. (although only a portion appeared in the proceedings); Tart's chapter appears much the same as his presidential address¹ and de Beauregard and Persinger have presented similar material in the past. Nevertheless, much that is new is available, and many may find the book a convenient and more complete source for what has appeared previously.

Seven of the sixteen contributors are physicists, three are engineers; and three others, Persinger, Wortz, and Tart, though psychologists, have presented much of their material from a "hard sciences" point of view. The content spans a broad range of topics in parapsychology, including remote viewing (RV) and telepathy, physiological measurements on subjects in psi experiments, PK, and a number of potential theories of psi mechanisms.

While most of the book's material is competently handled, there exist some areas that call for criticism. The theoretical handling of the question of compatibility between modern physics and the experi-

¹ In W. G. Roll (Ed.), *Research in Parapsychology*, 1977. Metuchen, N.J.: Scarecrow Press, 1978. Pp. 197-250.

mental findings in parapsychology is in many places unsatisfactory. In "Direct Perception of Remote Geographical Locations" the chapter ends with observations regarding the compatibility of psi in relation to physics. Here the authors state:

The areas of Physics we have under consideration . . . include . . . the Einstein-Podolsky-Rosen (EPR) paradox . . . which emphasizes that "no theory of reality compatible with quantum theory can require spatially separated events to be independent" . . . (experimentally confirmed at the microscopic level). (p. 98)

The statement is in error, as the macrolevel interconnectedness of Bell's theorem has been tested and the findings have substantiated the hypothesis that *macrolevel* interconnectedness exists just as required by quantum mechanics (QM). This is an important point to parapsychologists since (1) nonlocality is the central characteristic of psi phenomena that seems to contradict physical laws; and (2) this is the only place in all physics that nonlocality is to be found.

The authors also make reference to postulates of causality reversing tachyons which, even if tachyons had ever been shown to exist, would be hard pressed to provide any rational mechanism to resolve the issues raised by parapsychological research data. The authors do not develop a basis for understanding how tachyons might be considered a solution to an understanding of psi phenomena. Advanced potential electromagnetic waves are also offered as a way to understand precognition. But such waves would still travel at the speed of light and satisfy the same laws of propagation. An advanced potential wave would have to circle the earth to transmit a precognitive signal a mere 0.13 seconds into the future, and for that we would have to postulate the existence of advanced potentials in the clear absence of supporting experimental data.

One of the often tendered hypotheses to explain psi is the higher-dimensional-space "theory." Such proposals have severe difficulties. Minkowski could show that time "masquerades" as a space coordinate in Einstein's theory to make over our three-dimensional universe into a four-dimensional space-time. But the time coordinate was always there; the formal similarity of space and time had not been recognized. However, the postulate of a higher dimensional space carries with it effects that have impact on all the laws of physics. Such postulates lead to faster than inverse-square laws for electrostatic and gravitational fields, for example. In Chapter 3, another form of this hypothesis appears in which some effort has been made to explain how other coordinates might hide from physicists. An eight-dimensional *complex* space-time is proposed. This is intended (taken

literally it gives a four-space having the above problems combined with a four-dimensional timelike space) to combine the usual space-time with a second equivalent space-time coupled to the first only by the algebraic rules that govern complex numbers. But if we retain the inverse-square laws for gravity, as we must, these algebraic rules turn the complex distances into real quantities we should have long since observed by other effects on planetary trajectories.

Of course this argument against the complex-space hypothesis cannot be considered complete. In the case of elementary particle theory in QM, such ideas may be essential. The problem, however, is that the eight-dimensional complex-space hypothesis simply does not say anything definitive as presented. It pretends to be much more than in fact it is.

On the other hand, QM does not encounter such difficulties. This should have been stated and developed where the subject arose; or, if the authors are of a different mind, contrary arguments should have been given. Unfortunately, the authors do not carry over the real experimental data into a comparison with theoretical proposals as to the "mechanisms" of psi phenomena.

The sections of the book dedicated to reports on experimental work are far more satisfying than the sections discussing theory. Puthoff and Targ's chapter, "A Perceptual Channel for Information Transfer over Kilometer Distances: Historical Perspective and Recent Research," begins with a good review of parapsychological research. This corrects an earlier deficiency in the SRI reports. There has probably been a benefit derived from the course Puthoff and Targ have taken, as their results now appear as a strong, independent verification of earlier results obtained by Rhine and others.

In Chapter 3 the authors have drawn up a list of RV characteristics. This list is largely confined to the SRI experience and does not provide the broader perspective that one might find, say, in Gertrude Schmeidler's review² of the status of ESP and PK research in 1971.

The importance of the RV results obtained by Puthoff, Targ, and May at SRI have been greatly enhanced by researchers who have successfully replicated their protocol. Chapter 4, "Multiple Subject and Long-Distance Precognitive Remote Viewing of Geographical Locations," gives the results of one such group, J. P. Bisaha and B. J. Dunne, who conducted their work while at Mundelein College in Chicago. The long-distance targets (in Czechoslovakia and the USSR) yielded quite good results judging by the portions of the transcripts

² In *Proceedings of the Parapsychological Association*, No. 8, 1971. Pp. 117-143.

provided for the best two cases and from the statistical results. It would have been useful to have had more complete transcripts available. In this chapter, only two examples are given but these are especially good ones.

None of the authors who discuss the RV protocol present a picture of the complexities involved in conducting good RV experiments. Such experiments require a great deal of time and many people, if complete isolation of the various information sources is to be assured. *Mind at Large* also does not give a discussion of the more serious criticisms that have been raised against the RV technique, as for example the criticism by I. L. Child concerning the use of multiple judges or the criticisms of D. Marks and R. Kammann.³ The section at the end of Chapter 3 listing a series of criticisms and rebuttals is not quite adequate. The "arguments" are too abstract to reflect the character of actual criticisms that have been leveled, even though in the opinion of this writer such criticisms have been satisfactorily answered elsewhere.

Tart's chapter, "Improving Real-Time ESP by Suppressing the Future: Trans-Temporal Inhibition," gives an account of work with his ten-choice trainer (TCT), a device employing a random number generator (RNG) to generate GESP targets with feedback subsequent to each response. His chapter is clearly presented. Tart has obtained quite significant results with his procedure. The author also presents an analysis of his data indicating that his subjects selected responses in a way that biased against the next future or past targets. Tart presents his data as evidence of the existence of a *second* temporal consciousness span which is assumed to govern extrasensory functioning. He further postulates the existence of a mechanism of trans-temporal inhibition functioning much like neural lateral inhibition to account for the negative bias present in +1 and -1 displacement correlations between response and target sequences in the TCT experiments. The data these hypotheses are based on might at first appear to suffer a familiar deficiency encountered in parapsychological research, namely *data fatigue*. Tart's hypotheses may exceed the justifiable bounds of the experimental data. But his hypotheses are in several ways reasonable expectations to be explored. Further, his data appear to reflect a real process at work involving some aspect of the psi mechanism. The process may be something other than trans-temporal inhibition, however.

³ See *Nature*, 1978, 274 (No. 680), 680-681.

Tart's data indicate the presence of (1) positive ESP, (2) PK alteration of the target sequence, and (3) subject response biasing against repetition of the same response in succession. These conditions will give rise to negative correlations in +1 and -1 displacement response-target sequences. (A computer test of this hypothesis, carried out by this writer, has yielded positive results and will be reported in detail separately.)

Schmidt's chapter rounds out the presentation of the experimental results. In the discussion of his research into percipient PK effects on RNGs, Schmidt shows his imagination in the conception of novel experiments and his thoroughness in their execution. The use of RNG designs provides a solid basis to guarantee the validity of his results, and his experiments should be counted as among the best in parapsychology. The only criticism might be that he does not present any conclusions as to the physical nature of the psi interaction.

O. Costa de Beauregard gives an interesting discussion of his "voyage" to a rational conversion to parapsychology—the history of a struggle to understand the mystery of the existence of mind that dwells beyond matter. Surely the physicist who seeks answers to this mystery cannot help but find in QM a phenomenology having the right feel to resolve the mind-body question. Costa de Beauregard has recognized this and, in "Quantum Paradoxes and Aristotle's Twofold Information Concept," describes his view of the relationship between QM and parapsychology. He does not give us a cleanly stated position, but discusses a broader, though personal, view of the philosophical implications of physics. The connection to psi is often not as direct as we might wish. It is an excursion into similarities and suggestions and not into detailed mechanisms.

De Beauregard raises the important question of consciousness in his chapter, but does not consider what consciousness is, beyond giving a Bergsonian "consciousness is attention to life," nor bother with any of the questions of the mechanisms of brain interaction with external matter to give rise to psi phenomena.

A look at Persinger's chapter on "ELF Field Mediation in Spontaneous Psi Events: Direct Information Transfer or Conditioned Elicitation?" will complete the critique of the theoretical sections of *Mind at Large*. This reviewer cannot say much that is favorable about Persinger's theory or presentation except that *all* parapsychologists *should* read this chapter to make certain they do not make the error of carrying out any experiments that would fit his "conditioned elicitation" theory. Surely environmental factors can affect "senders" and "receivers"

alike, and thus simulate information transfer. However, Persinger does not justify his theory by citing experimental data, but only gives *simulated* anecdotal material!

Persinger also assumes extremely low frequency (ELF) EM radiation to be the carrier of telepathic signals. It is true that many telepathy experiments have been conducted that allow the radio-transmission hypothesis. But parapsychological experimentation has also given us data that would rule out this hypothesis. Almost any of the clairvoyance experiments are adequate to this end. Even in the case of telepathy experiments, successful intercontinental RV experiments as conducted by Puthoff and Targ, Bisaha and Dunne, or the submarine experiment discussed on pages 99 and 100 and in a footnote are adequate evidence to rule out ELF radiation as a possible information channel.

Persinger's work contributes more the air of the physical rationale than it provides understanding of the phenomena of parapsychology.

Mind at Large ends with a review of Soviet parapsychological research by Wortz, Bauer, Blackwelder, Eerkens, and Saur. The chapter does not add significantly to our knowledge of the Russian commitment to research in parapsychology. Some information is presented as to the philosophical constraints under which the Russians conduct their activities, as in their more extensive use of terms like *bioplasma*, *psychotronics*, and *psychoenergetics* to legitimize their research vis-à-vis Marxist materialism. But no picture of the extent of serious quality research emerges. The well-known work of Kogan, certainly to be counted among the best efforts as of its publication, is frequently mentioned, as it points to the growth of a serious interest in telepathy in Russia in the 1960s. But where that interest has led in the 1970s is a mystery heightened by the absence even of information regarding Kogan's present circumstances.

Much of this chapter on the Soviet work is poorly handled as a result of a superficial knowledge of Western scientific research in parapsychology. Thus, we find such comments as: "Many Westerners . . . cling to an undertone of a religious-like belief in transcendent mechanisms," or "bioplasma . . . seems to be analogous to the *aura* of Western parapsychologists."

There is also evident a lack of quality in their evaluation of some available data. The sense of Sergeev's autocorrelation function as a measure of a psi modulation seems to have eluded them. Adamenko's explanation of PK in terms of electrostatic fields is praised as a rational approach to understanding PK despite the fact that electro-

static fields are as familiar and as easily recognized for what they are to anyone living in cold dry climates as are toy magnets.⁴

Wortz et al. also give statements like, "Certainly, water would be a poor medium for detecting electrical fields because of its high dielectric constant." This writer must presume the authors would have the same opinion as to the utility of iron for sensing magnetic fields, since iron has a high magnetic permeability. Neutrinos are again offered as carriers of psi information. Neutrino interaction with matter is twenty orders of magnitude smaller than the EM interaction. Thus, where we might propose the radiation of, say, one watt of the body's 120-watt power consumption to account for telepathy over distances of one to 100 Km (i.e., "mental radio"), to accomplish the same thing with neutrinos would require twenty orders of magnitude more power, far more than the world's entire output of power!

The authors spare us nothing. We are treated to gems like "bioplasmagram is a low-frequency electrostatic field," new terminology: NBIT (novel biophysical information transfer), and such bizarre and nonstandard usage as "schizophysical interpretation of basic quantum mechanical theory," displaying these authors' apparent *ignorance* that the question of observer effects is a recognized topic in the literature of QM.

In all, the chapter does not provide an insight to Soviet parapsychological research of any utility, nor does it contribute to the overall literature in a significant or valid way.

There are two other chapters in *Mind at Large*, both written by rather exceptional people who bring their own perspectives to the subject of parapsychology. Edgar Mitchell gives his speculations about the social implications of psi phenomena and Ingo Swann provides us with his most unique perspective on the subjective aspects of psychic research.

It is appropriate that Edgar Mitchell introduced the subject of *Mind at Large*. In some ways Mitchell is much akin to Ingo Swann in

⁴ The reader should take the opportunity to see Adamenko's film of his experiments using a transparent plastic cube as a table, which has been circulated in this country. While it is billed as a demonstration of PK, it clearly is a demonstration of household electrostatic effects. Psychokinesis as studied in the laboratory involves procedures such as alternation of targets to assure that effects like electrostatic fields, table-tilting, and parlor tricks can be eliminated by the protocol. Were the authors of this chapter familiar with the Western literature, their electrostatic field comments might have been avoided. This does not mean that the explanation of electrostatic fields is to be ignored in all cases, but as regards the technical field of parapsychology, Adamenko's efforts suggest disinformation.

having been a *subject* and a *participant* in one of the age's greatest achievements. It is a vantage that has given him at one moment a view of the vastness of both mind and space. It is from this perspective—like the Piccard brothers in one man—as an observer of both worlds that he comes to us in his introduction to the social importance of this new frontier in *Mind at Large*.

Swann comes to parapsychology as one of the individuals labeled “subject.” Yet Swann has contributed more than his share to the progress of parapsychology. He has been the source of some of the best results obtained in various experiments, and he has stimulated and helped to create some important experiments in parapsychology, as for example the “temperature” experiments with Gertrude Schmeidler and the RV experiments at SRI International. Swann gives an interesting presentation of his views on the future directions of research work in parapsychology. It would have been useful had he also given us a detailed and analytic view of RV and PK as subjectively experienced. Still, the chapter remains a fine contribution.

Much of this review has been devoted to detailing portions of the book this reviewer feels exhibit shortcomings. Such an effort would not have been justified were the book, or the research on which it stands, unimportant. Most of the contributors to *Mind at Large* are rather to be congratulated for their work that has so advanced parapsychology. Particular praise should be offered to the efforts of these individuals who have worked to hold the IEEE symposia on the topic of extrasensory perception. These people have done much to broaden our horizons and to approach the rest of the scientific community with a strong statement. They should be supported and encouraged by the interest we show in the good work they have accomplished.

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